The hospital library online—a point of service for consumers and hospital staff: a case study

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The Health Library at Stanford University is described in the context of electronic information services provided to Stanford University Medical Center, the local community, and Internet users in general. The evolution from CD-ROM-based services to Web-based services and in-library services to networked resources are described. Electronic services have expanded the mission of The Health Library to include national and international users and the provision of unique services and collections.

The Health Library at Stanford was conceived of as a consumer resource for the local community when it opened its doors in 1989 in the Stanford Shopping Center, adjacent to the Stanford University Medical Center (SUMC). Four years later, at the request of the Stanford Hospital nursing staff, a branch library in the hospital was created for patients and family members. Use statistics rapidly indicated that hospital staff members routinely used The Health Library and have continued to support it at a user rate that has grown to 60%. While library staff anticipated that there would be some hospital staff usage, the expectations were that the hospital staff would continue to make use of Stanford University Medical School's Lane Medical Library, located in a building adjoining the hospital. However, hospital staff patronage has been largely due to The Health Library's ability to deliver services via electronic media.

FACILITY-BASED SERVICES INITIALLY

Although located geographically close to SUMC by a distance of approximately one quarter mile, The Health Library was not connected to the hospital's wide area network for its first five years. During that time all electronic data was delivered through stand-alone CD-ROM products at the two library sites* only during operating hours. For nursing staff, making use of the Health Reference Center database at the library required a visit to one of the sites, or a phone request

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* The Health Library at Stanford Shopping Center and the LaVerne Wilson Health Library at Stanford University Hospital.

for a mediated search by library staff. For those requesting delivery through internal mail, the wait for information might be as long as three days. For staff who worked night shifts and weekends, the only option was to leave phone messages requesting delivery of needed information.

NETWORK CONNECTIONS

Once connected to the hospital's network via an integrated services digital network (ISDN) connection, The Health Library mounted the CD-ROM version of the Health Reference Center on the hospital server thus making the database available to the hospital staff at their workstations. In spite of a concerted effort to educate nursing staff about the existence of this product on their workstations through presentations to nurse managers and through fliers, many staff members did not associate the icon on their workstations with the product they had used on-site in The Health Library.

The Health Library upgraded its network connection to an infrared laser connection linked from the shopping center site to a nearby building housing the Stanford Hospital computer servers. This connection operated at 10 MPS (megabytes per second), a speed of transmission that is slightly faster than a T1 line. At this time, the Health Reference Center database was migrated to the Web product, SearchBank—Academic, which is featured prominently on The Health Library's Web site. As the use of the Internet has become synonymous with information retrieval and because The Health Library's Web site is easily located on the SUMC homepage, increased usage of the library's Web

services by the hospital staff has occurred. In particular, SearchBank has been heavily used.

The academic version of the SearchBank product addresses more completely the range of patron expectations from the consumer level to health professional level because it contains a greater percentage of professional journals. The Health Library's retrieval statistics show a heavy, predominant use of clinical references and articles with the five most retrieved resources in order: *JAMA, The Lancet, The Columbia University Complete Home Medical Guide, American Family Physician,* and *Mosby's Medical, Nursing and Allied Health Dictionary.*

With a Web interface that is available at all SUMC workstations, the entire medical center staff has around-the-clock access to The Health Library's online resources, and statistics indicate that all shifts are now making use of these resources. In addition, all computers within the Internet protocol (IP) address range that designates the SUMC are now able to access the SearchBank—Academic database, making it available to the staff of all clinics and departments within the SUMC. The Health Library has a ten-user multiple site license that allows for ten simultaneous accesses to SearchBank, and so far, this access has proven sufficient in meeting simultaneous user needs.

Education of users has included an e-mail broadcast message to all SUMC employees announcing The Health Library's URL and the accessibility of SearchBank to all employees. Library staff have also provided medical center staff with a list of the full-text journals that SearchBank contains to demonstrate its breadth. Library staff have provided telephone coaching and face-to-face training as well, teaching the medical center staff two primary access modes for retrieving material: subject searching and journal title and date searching. Anecdotal observation has shown that the clinical staff (primarily hospital and clinic nurses) makes greatest use of the subject search in retrieving materials for patient and continuing education, while the research staff tends to use the database to isolate journal titles and dates.

JCAHO COMPLIANCE AND PATIENT EDUCATION MATERIALS

The Health Library is a member of the patient and family education committee that oversees compliance with the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards regarding patient and family education within both the Stanford Hospital and the clinics. The primary task for the committee has been meeting the JCAHO requirement that every piece of educational material dispensed within the organization be reviewed for content and appropriateness, and that a record of review be maintained.

Because The Health Library already served as the primary educational resource for patients and their families, it seemed logical that the library would create a database to meet JCAHO standards. The Health Library created a Microsoft Access database that resides on the hospital network and that can be searched by title, subject, publisher, type of material, and dispensing department. Every piece of educational material that is given to patients throughout the hospital and clinics is recorded, and The Health Library has a paper copy of all handouts, fact sheets, and pamphlets that clinical staff dispense. A review sheet accompanies each item and indicates the currency of review, the reviewer, and authority regarding the material.

The patient and family education committee is hopeful that this database will eliminate or at least reduce the redundancy that inevitably occurs when departments are unaware of the existence of materials already available within an institution. Within a year, The Health Library will migrate the Access database into the InMagic DB/Textworks online public access catalog (OPAC), and it too will be networked throughout the SUMC.

Original educational materials generated within SUMC will also be digitized and stored in image files in The Health Library's OPAC. Users will be able to conduct subject heading searches of these files, and will be able to print from workstations throughout the medical center. They will also have the potential of e-mailing the documents as attachments, allowing for another means of delivery system-wide and beyond.

The Health Library was one of the departments singled out for commendation by the JCAHO reviewers in May 1998, because it had effectively met the standards and provided support across the continuum of care for patient and family education through its online services.

REVIEWED LINKS AND STREAMING VIDEO

Users of the Internet are turning to research institutions (such as Stanford) for information regarding the latest in medical research. The Health Library has experienced a great deal of communication from users worldwide looking for material from SUMC. The Health Library's Web site is accessed on average 20,000 times per month, with 30% of the accesses coming from within the Stanford institution and 70% coming from outside the institution. Unlike other institutions that produce Web sites that feature proprietary print information, The Health Library presents a classified series of reviewed links to other sites that address the user needs.

The library has been able to take advantage of digital technology that allows placement of videos, which are proprietary to Stanford Hospital and The Health Library, on a Web page in a variety of video streaming

formats.† A unique relationship with MedIT, SUMC's networking and Web specialists, has made this possible.

Over fifty videos currently featured on the Web site are available for downloading in either a RealVideo format—which can be downloaded to play at any of four bandwidths: 300 K, 112 K, 56 K, or 28.8 K—or through MPEG-1 video streaming. The MPEG-1 format requires a high-speed Internet connection (1.5 megabits per second or higher) as well as a powerful computer such as an IBM-compatible computer with a PentiumII chip or a PowerPC Macintosh. Users from industry are the intended audience for the MPEG-1 format rather than the home user.

Currently, the RealVideo page is the third most accessed page. As the video collection is expanded and streaming technology becomes more widely available, The Health Library feels that these unique resources will become more heavily used. The Health Library's community education project produces free public talks by Stanford researchers for the local community, which are videotaped and placed on the Web page soon thereafter. They have thereby been able to take a formerly localized service and offer it on a global scale.

To address the needs of users looking for Stanford-unique information, such as clinical research trials at

Stanford, links are provided to Stanford Web sites in the appropriate subject categories with a special icon that designates the sites as Stanford-created and maintained. The Stanford links have been placed at the top of each category so that the user does not have to search for them among other selected and reviewed links.

CONCLUSION

Electronic delivery developments in the last decade have allowed The Health Library to provide services within the Stanford community at several different sites, as well as to provide the public with services that were previously unavailable except through an on-site visit to a library. Internet customers have the option of writing to the library staff with information requests that are answered by forwarding information from SearchBank via e-mail. In addition, staff also recommends appropriate Web sites for information and provides the results of MEDLINE searches via e-mail, as well as providing cursory instructions on the use of MEDLINE. By exploiting as many electronic delivery systems as possible, The Health Library has become a direct access point for services via the Internet, and the integration of electronic delivery systems allows for an economical and far reaching delivery system that can address a range of customers from health consumers to health sciences professionals.

† The Health Library RealVideo page may be viewed at http://www-med.stanford.edu/healthlibrary/catalog/realvideo.html.